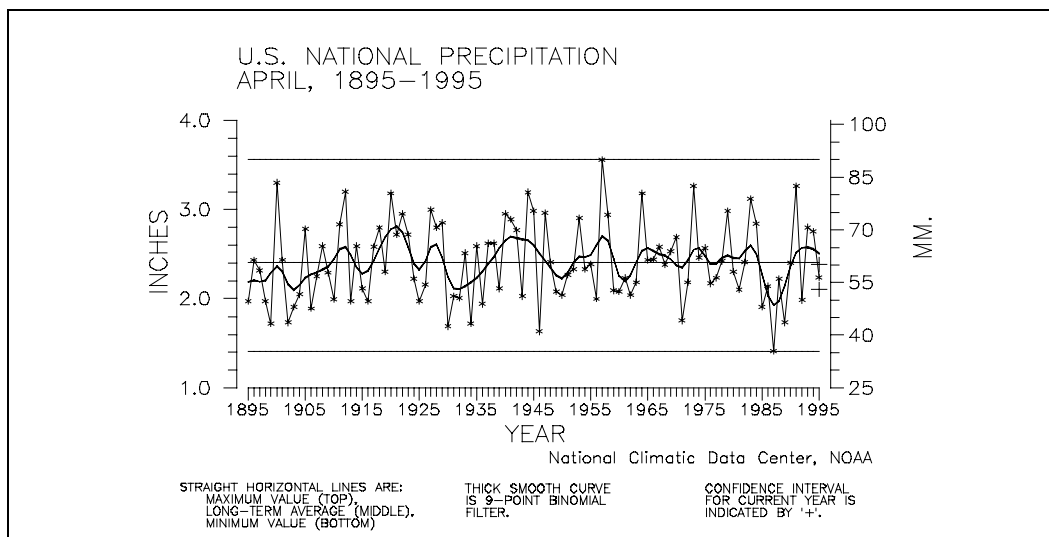
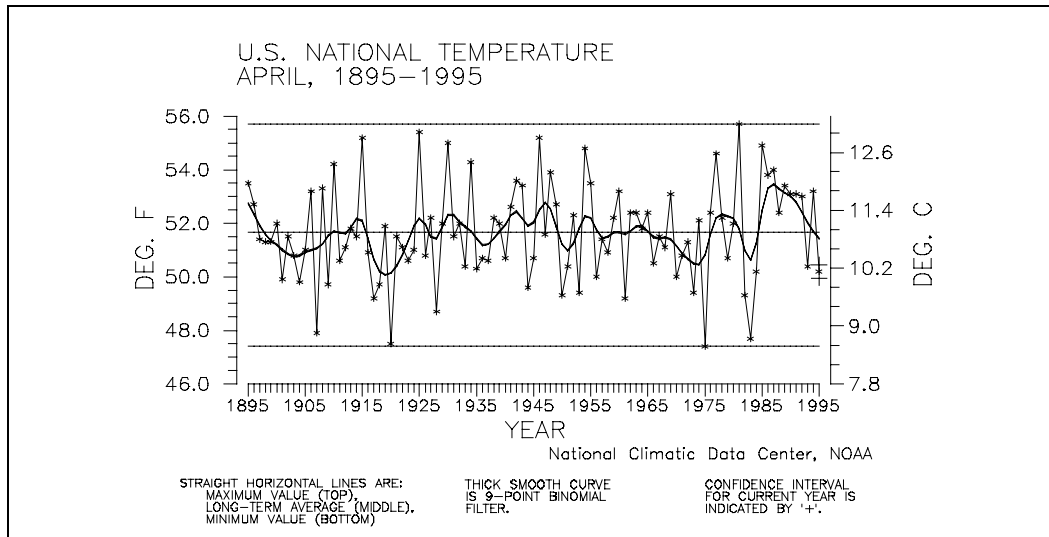


CLIMATE VARIATIONS BULLETIN



This CLIMATE VARIATIONS BULLETIN (CVB) is a preliminary report that puts current monthly climate anomalies into historical perspective using climate databases archived at the National Climatic Data Center (NCDC). It is issued on a monthly basis. Supplemental sections are included which address seasonal and annual perspectives, when appropriate.

Current data are based on preliminary reports from First and Second Order airport stations obtained from the National Weather Service (NWS) Climate Analysis Center, and preliminary tornado statistics obtained from the NWS National Severe Storms Forecast Center. **THE CURRENT DATA SHOULD BE USED WITH CAUTION.** These preliminary data are useful for estimating how current anomalies compare to the historical record, however the actual values and rankings for the current year will change as the final data arrive at NCDC and are processed.

The following NCDC datasets are used for the historical data: the climate division drought database (TD-9640), the hurricane datasets (TD-9636 and TD-9697), the tornado dataset (STORM DATA), and the monthly station dataset (LCD supplemental files). It should be noted that the climate division drought database consists of monthly data for 344 climate divisions in the contiguous United States. These divisional values are calculated from the 6000+ station Cooperative Observer network.

The narrative, tables, and graphs in the CVB are also available via automated facsimile. The previous month's summary can be obtained after the tenth of the month by dialing 704-271-4570 and selecting the appropriate menu codes. A touch-tone fax machine is required.

If you have access to the Internet, copies of the CVB are available via both the NCDC's World Wide Web (WWW) server and the NCDC's anonymous FTP server.

NCDC's WWW server

URL for the CVB: <http://www.ncdc.noaa.gov/publications/cvb/cvb.html>

NCDC's anonymous FTP server

Machine: <ftp.ncdc.noaa.gov>

Directory: [/pub/data/cvb](ftp://ftp.ncdc.noaa.gov/pub/data/cvb)

If you are a climate researcher and would like to order copies of the historical datasets used to make graphs of the type in this report, call 704-271-4994 or fax a letter to 704-271-4876 or mail a letter to the address given below, ATTN: Research User Services.

All other questions or requests for data should be made by calling 704-271-4800 or sending a fax to 704-271-4876 or by writing to:

National Climatic Data Center, NOAA
Federal Building
151 Patton Avenue, Room 120
Asheville, NC 28801-5001

If you use any of the information from this CVB, please identify "National Climatic Data Center, NOAA" as the source.

UNITED STATES APRIL CLIMATE IN HISTORICAL PERSPECTIVE

William O. Brown
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Preliminary data for April 1995 indicate that temperature averaged across the contiguous United States was below the long-term mean (see Figure 1). April 1995, with an averaged temperature of 50.2° (F), ranked as the 19th coolest April since national records began in 1895. The 1995 value is based on preliminary data, which has been shown to be within 0.26°F (0.14°C) of the final data over a 46-month period. This confidence interval is indicated in the figure by '+'. The darker smooth curve is a nine-point binomial filter that averages out the year-to-year fluctuations and shows the longer-term variations. Only 1.4% of the country averaged much warmer than normal while 14.6% of the country averaged much colder than normal for April 1995.

Areally-averaged precipitation for the nation was slightly below the long-term mean, ranking April 1995 as the 42nd driest April on record. The preliminary value for precipitation is estimated to be accurate to within 0.14 inches (3.56 millimeters) and the confidence interval is plotted in Figure 2 as a '+'. About a tenth (10.7%) of the country experienced much drier than normal conditions while 5.5% was much wetter than normal.

Historical precipitation is shown in a different way in Figure 3. The April precipitation for each climate division in the contiguous U.S. was first standardized using the gamma distribution over the 1931-90 period. These gamma-standardized values were then weighted by area and averaged to determine a national standardized precipitation value. These national weighted values were then normalized over their period of record. Negative values are drier and positive values are wetter than the mean. This index gives a more accurate indication of how precipitation across the country compares to the local normal (60-year average) climate. The national standardized precipitation ranked April 1995 as the 39th driest such month on record.

In order to show more of a historical perspective, the precipitation and temperature rankings for the periods April 1995, March-April 1995, November 1994-April 1995, and May 1994-April 1995 for the nine climatically homogeneous regions, as well as the national rankings, are listed in Table 1.

The regional rankings for temperature for the month of April indicate that the Southeast region had their 27th warmest April since 1895 (Figure 14). This was the only region within the warm third of the historical distribution. To the other extreme, it was the tenth coolest April on record for the East-North Central region (Figure 13), the 15th coolest for the West-North Central region, the 17th coolest April for the Southwest, and the 25th coolest April for the Northeast region. The western quarter of the country as well as the South and Central regions were in the middle third of the historical distribution.

April 1995 was the 12th driest such month on record for the Northeast region (Figure 11) and the 16th driest for the Southeast region. Ironically, it was just two years ago that the Northeast region had their fourth wettest April since 1895. April 1995 was the 29th wettest such month on record for the East-North Central region (Figure 12) and makes five such months of above to much above normal precipitation totals. This statistic reverses the precipitation deficits noted in the late 1980's. The remainder of the country was in the wet half of the historical distribution.

National averaged temperature for the four month period January-April for 1895-1995 is shown in Figure 4. The January-April 1995 temperature was much above the long-term mean ranking as the 16th warmest such period since 1895. Six of the last ten such January through April periods have had temperatures much above the long-term mean.

Figure 5 shows the historical January-April national averaged precipitation. In 1995 this was the 48th wettest such four-month period since records

began. When the local normal climate is taken into account, January-April 1995 ranked as the 47th driest such period since 1895 (Figure 6).

Figure 7A shows, in illustrative map form, the April 1995 temperature rankings for the 48 contiguous states. Only nine states were within the warm third of the historical distribution for the month of April and none were within the top ten warmest. Twenty-three states ranked in the cool third of the historical distribution, including five within the top ten. It was the seventh coolest April on record for Maine, eighth coolest for Colorado, Nebraska, and South Dakota, and the tenth coolest April since 1895 for Wisconsin.

April 1995 state ranks for precipitation are shown in Figure 7B. It was the driest April on record for North Carolina, third driest for Massachusetts, fourth driest for South Carolina, sixth driest for Virginia, and tenth driest for Georgia and New Hampshire. Fourteen other states were within the dry third of the distribution. Only Iowa was within the top ten wet rankings (8th) for April while ten more states were within the wet third of the historical distribution. It must be stressed that, when the final values for precipitation are calculated, these ranks *WILL* change due to the use of a denser station network. ***It should also be noted that the April state precipitation ranks are preliminary and should be used with considerable caution due to the high variability of precipitation on a small space and time scale.***

Temperature and precipitation ranks for the four-month period, January-April 1995, are shown in map form in Figures 8A and 8B. Five states experienced their tenth warmest or warmer such four-month period (Figure 8A). Included in this statistic was the seventh warmest year-to-date on record for Nevada, Oregon, and Rhode Island, ninth warmest for Arizona, and tenth warmest year-to-date for Wyoming. Twenty-eight other states were within the warm third of the historical distribution for the year-to-date. No states were within the cool third of the historical distribution for this four-month period. It was the fifth driest January-April period for New Jersey, New York, and Pennsylvania (Figure 8B). The January through April 1995 period was the sixth driest such year-to-date for Massachusetts, seventh driest for Delaware, and the ninth driest such year-to-date for Maryland while fifteen other states were within the dry third of the historical distribution for the January through April period. It was the seventh wettest year-to-date for South Dakota and the eighth wettest such period for California. Six other

states were within the wet third of the historical distribution.

There was a slight increase in the national percent area of severe to extreme long-term drought during April 1995, while the decreasing trend in the percentage of the country experiencing severe to extreme long-term wet spell of the previous three months came to a halt. Nationally, long-term drought conditions (as defined by the Palmer Drought Index) for April 1995 increased to 3.4% of the country while the percent coverage of severe to extreme wet area hovered around twelve percent (Figure 9). Table 2 lists the precipitation ranks and statistics for selected river basins for the 1994-1995 Hydrologic Year thus far. The core wet areas included portions of the northern Great Plains and the Southwest, with patchy wetness in the Southeast, South and West. The Palmer dry areas included the southern Plains, patches of the interior Northwest, northern and central Rockies, central Appalachians, mid-Atlantic, southern New England, and Ohio Valley.

Table 3 shows extremes, 1961-90 normals, and the April 1995 values for both precipitation and temperature for the nine regions and the contiguous U.S.

Precipitation averaged across the Primary Corn and Soybean Belt was near normal for the two-month growing season to date (Figure 10).

According to preliminary data from the National Weather Service's National Severe Storms Forecast Center, there were 132 tornadoes across the contiguous United States in April 1995. The 1953-1994 average tornado count for April is 107. Only 20 tornadoes were reported in April 1987 while 269 were documented in April 1974. For the year-to-date, 224 tornadoes have occurred. The average tornado count for the January-April period is 195. The January-April extremes are 83 in 1987 and 405 in 1991. It should be noted that the preliminary tornado count is generally higher than the final count.

TABLE 1. PRECIPITATION AND TEMPERATURE RANKS, BASED
ON THE PERIOD 1895-1995. 1 = DRIEST/COLDEST,
101 = WETTEST/WARMEST FOR APRIL 1995,
101 = WETTEST/WARMEST FOR MAR-APR 1995,
100 = WETTEST/WARMEST FOR NOV 1994-APR 1995,
100 = WETTEST/WARMEST FOR MAY 1994-APR 1995.

REGION	APR 1995	MAR-APR 1995	NOV 1994- APR 1995	MAY 1994- APR 1995
-----	----	-----	-----	-----
PRECIPITATION:				
NORTHEAST	12	2	8	20
EAST NORTH CENTRAL	73	67	48	56
CENTRAL	51	14	30	17
SOUTHEAST	16	9	34	80
WEST NORTH CENTRAL	70	79	48	50
SOUTH	52	60	53	60
SOUTHWEST	55	49	78	60
NORTHWEST	63	68	47	36
WEST	67	89	92	90
NATIONAL	42	41	55	51
TEMPERATURE:				
NORTHEAST	25	63	92	87
EAST NORTH CENTRAL	10	56	90	90
CENTRAL	58	78	95	75
SOUTHEAST	75	83	89	61
WEST NORTH CENTRAL	15	40	80	90
SOUTH	41	50	86	81
SOUTHWEST	17	49	88	98
NORTHWEST	39	67	76	93
WEST	42	57	61	85
NATIONAL	19	63	95	94

TABLE 2.

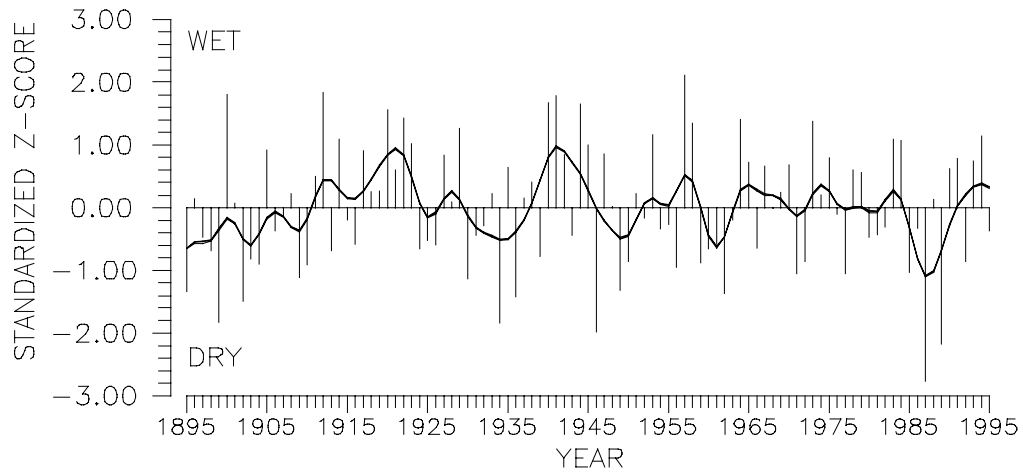
STATISTICS FOR SELECTED RIVER BASINS: PRECIPITATION RANKING FOR OCT-APR 1994-95, WHERE RANK OF 1 = DRIEST, 100 = WETTEST, BASED ON THE PERIOD 1895 TO 1995, AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) DROUGHT, AND AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) WET CONDITIONS, AS OF APRIL 1995. RIVER BASIN REGIONS AS DEFINED BY THE U.S. WATER RESOURCES COUNCIL.

RIVER BASIN -----	PRECIPITATION RANK -----	% AREA DRY -----	% AREA WET -----
MISSOURI BASIN	90	.0%	19.6%
PACIFIC NORTHWEST BASIN	79	2.2%	4.4%
CALIFORNIA RIVER BASIN	88	.0%	13.6%
GREAT BASIN	85	.0%	14.6%
UPPER COLORADO BASIN	58	.0%	.0%
LOWER COLORADO BASIN	89	.0%	29.8%
RIO GRANDE BASIN	67	31.0%	30.2%
ARKANSAS-WHITE-RED BASIN	72	.0%	.0%
TEXAS GULF COAST BASIN	87	.0%	.0%
SOURIS-RED-RAINY BASIN	93	.0%	73.9%
UPPER MISSISSIPPI BASIN	64	.0%	13.9%
LOWER MISSISSIPPI BASIN	55	.0%	.0%
GREAT LAKES BASIN	25	.0%	8.6%
OHIO RIVER BASIN	14	10.5%	.0%
TENNESSEE RIVER BASIN	22	.0%	.0%
NEW ENGLAND BASIN	10	4.5%	.0%
MID-ATLANTIC BASIN	3	13.2%	.0%
SOUTH ATLANTIC-GULF BASIN	67	.0%	8.8%

TABLE 3. EXTREMES, 1961-90 NORMALS, AND 1995 VALUES
FOR APRIL

REGION	PRECIPITATION (INCHES)				NORMAL PCPN	1995 PCPN
	DRIEST VALUE	YEAR	WETTEST VALUE	YEAR		
NORTHEAST	1.40	1896	6.81	1983	3.42	2.14
EAST NORTH CENTRAL	1.04	1946	4.84	1896	2.63	2.99
CENTRAL	1.55	1915	6.82	1927	3.95	3.62
SOUTHEAST	.85	1986	7.06	1928	3.52	2.23
WEST NORTH CENTRAL	.48	1926	2.83	1984	1.62	1.78
SOUTH	1.08	1987	6.92	1957	2.98	3.08
SOUTHWEST	.26	1989	2.58	1900	.83	.89
NORTHWEST	.61	1977	3.81	1937	1.97	1.98
WEST	.14	1909	3.25	1967	1.22	1.35
NATIONAL	1.41	1987	3.56	1957	2.38	2.24
REGION	TEMPERATURE (DEGREES F)				NORMAL TEMP	1995 TEMP
	COLDEST VALUE	YEAR	WARMEST VALUE	YEAR		
NORTHEAST	38.8	1943	50.4	1921	44.4	42.3
EAST NORTH CENTRAL	35.7	1950	51.8	1915	44.0	39.8
CENTRAL	45.4	1907	59.5	1896	53.4	53.5
SOUTHEAST	56.6	1901	66.6	1954	62.1	63.6
WEST NORTH CENTRAL	34.5	1920	49.5	1915	43.0	39.2
SOUTH	57.2	1983	67.4	1925	62.7	61.5
SOUTHWEST	44.4	1920	55.6	1989	49.9	47.4
NORTHWEST	39.7	1975	52.6	1934	44.9	44.6
WEST	43.3	1967	58.5	1934	51.9	51.6
NATIONAL	47.4	1975	55.7	1981	51.7	50.2

U.S. NATIONAL NORMALIZED PRECIPITATION INDEX
APRIL, 1895–1995

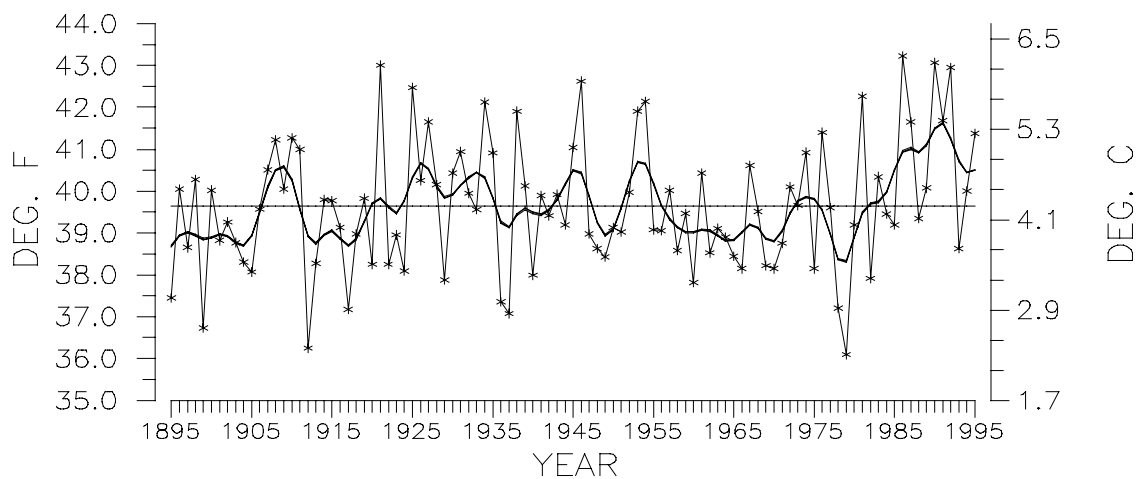


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FILTER.

Figure 3

U.S. NATIONAL TEMPERATURE
JANUARY–APRIL, 1895–1995

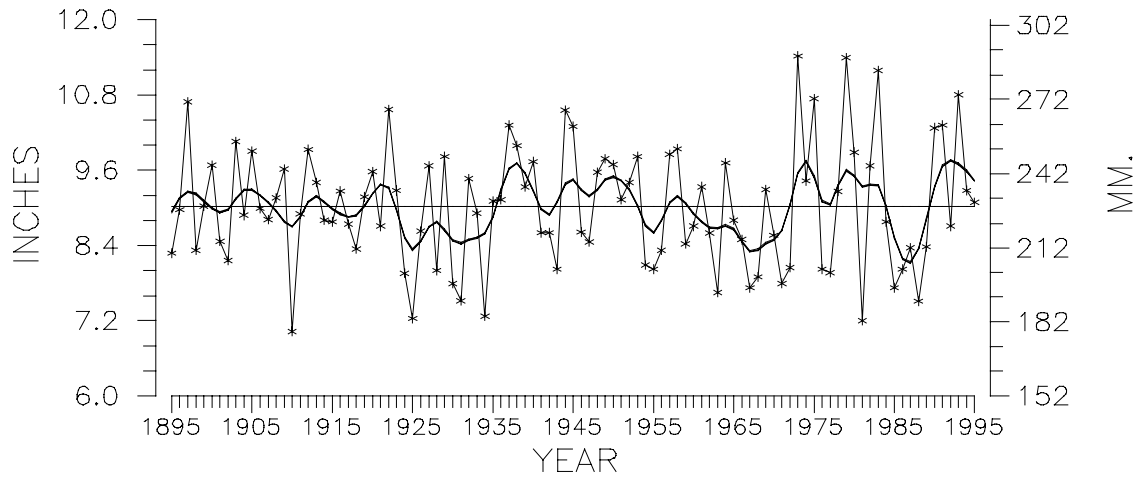


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Figure 4

U.S. NATIONAL PRECIPITATION JANUARY–APRIL, 1895–1995

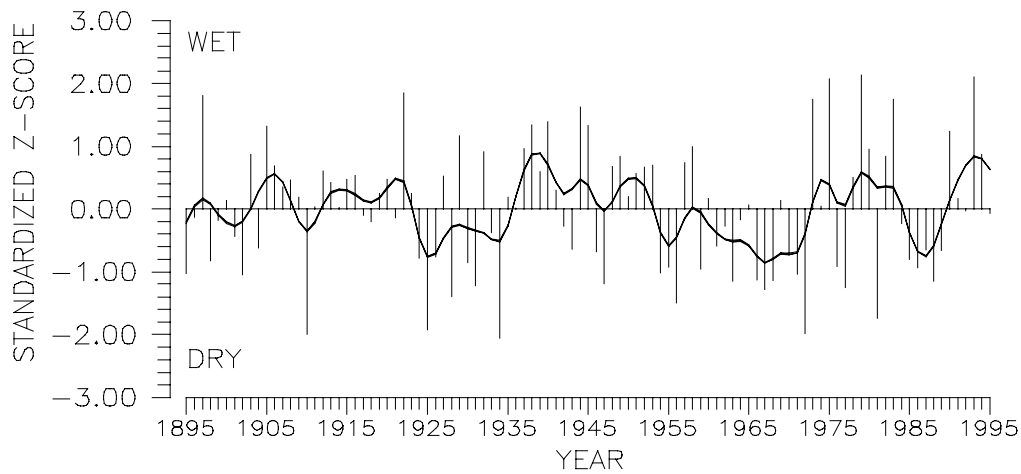


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Figure 5

U.S. NATIONAL NORMALIZED PRECIPITATION INDEX JANUARY–APRIL, 1895–1995



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Figure 6

Figure 7A: COVID-19 DEATHS

This map displays the number of deaths per 100,000 people by state for COVID-19. The data is as follows:

State	Deaths per 100,000
Alabama	55
Alaska	44
Arizona	37
Arkansas	60
California	45
Colorado	29
Connecticut	59
Delaware	47
District of Columbia	23
Florida	73
Georgia	83
Hawaii	16
Idaho	19
Illinois	33
Indiana	70
Iowa	20
Kansas	15
Kentucky	72
Louisiana	67
Maine	7
Maryland	68
Massachusetts	35
Michigan	14
Minnesota	12
Mississippi	43
Missouri	8
Montana	13
Nebraska	8
Nevada	35
New Hampshire	15
New Jersey	27
New Mexico	19
New York	23
North Carolina	84
North Dakota	15
Ohio	51
Oklahoma	15
Oregon	33
Pennsylvania	72
Rhode Island	54
South Carolina	57
South Dakota	12
Tennessee	72
Texas	55
Utah	48
Vermont	15
Virginia	69
Washington	44
West Virginia	22
Wisconsin	10
Wyoming	19

A map of the United States where each state is labeled with a number representing its precipitation level. The numbers range from 1 to 88. State 94 (Montana) is shaded with diagonal hatching. States 6, 10, 1, 4, and 1 are shaded with a cross-hatch pattern. A legend at the bottom left indicates that '1 = Coldest/Driest'.

State	Precipitation Level
Alaska	25
Ariz.	40
Calif.	75
Colo.	69
Conn.	30
Del.	12
D.C.	3
Fla.	71
Ga.	10
Haw.	47
Ill.	62
Ind.	62
Iowa	72
Kan.	54
Kent.	15
Louis.	60
Maine	14
Maryl.	13
Mass.	10
Mich.	66
Minn.	55
Miss.	78
Mo.	65
Neb.	88
Nev.	33
N.H.	28
N.J.	18
N.M.	58
N.Y.	15
Ohio	51
Ore.	88
Penn.	15
R.I.	3
S.D.	20
Texas	25
Verm.	3
Virg.	6
Wash.	46
West Virg.	20
Wis.	55
Wyom.	74

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Figure 8A: A map of the United States showing average annual temperature by state. The states are shaded in three categories: dark gray (highest temperatures), medium gray (middle temperatures), and light gray (lowest temperatures). The temperatures are as follows:

State	Temperature	Category
Alaska	55	Low
Arizona	93	High
California	90	High
Colorado	82	High
Connecticut	81	High
Delaware	82	High
District of Columbia	85	High
Florida	55	Low
Georgia	60	Low
Hawaii	84	High
Idaho	91	High
Illinois	60	Low
Indiana	62	Low
Iowa	68	Low
Kansas	74	Low
Kentucky	73	Low
Louisiana	69	Low
Maine	88	High
Maryland	81	High
Massachusetts	82	High
Michigan	63	Low
Minnesota	66	Low
Mississippi	69	Low
Missouri	70	Low
Montana	78	Low
Nebraska	60	Low
Nevada	95	High
New Hampshire	81	High
New Jersey	75	High
New Mexico	92	High
New York	81	High
North Carolina	68	Low
North Dakota	60	Low
Ohio	77	Low
Oklahoma	73	Low
Oregon	95	High
Pennsylvania	81	High
Rhode Island	82	High
South Carolina	54	Low
South Dakota	60	Low
Tennessee	74	Low
Texas	73	Low
Vermont	88	High
Virginia	70	Low
Washington	91	High
West Virginia	85	High
Wisconsin	60	Low
Wyoming	60	Low

FIGURE 8B:
PRECIPITATION

1 = Coldest/Driest

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1995. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 92-101) are shaded.

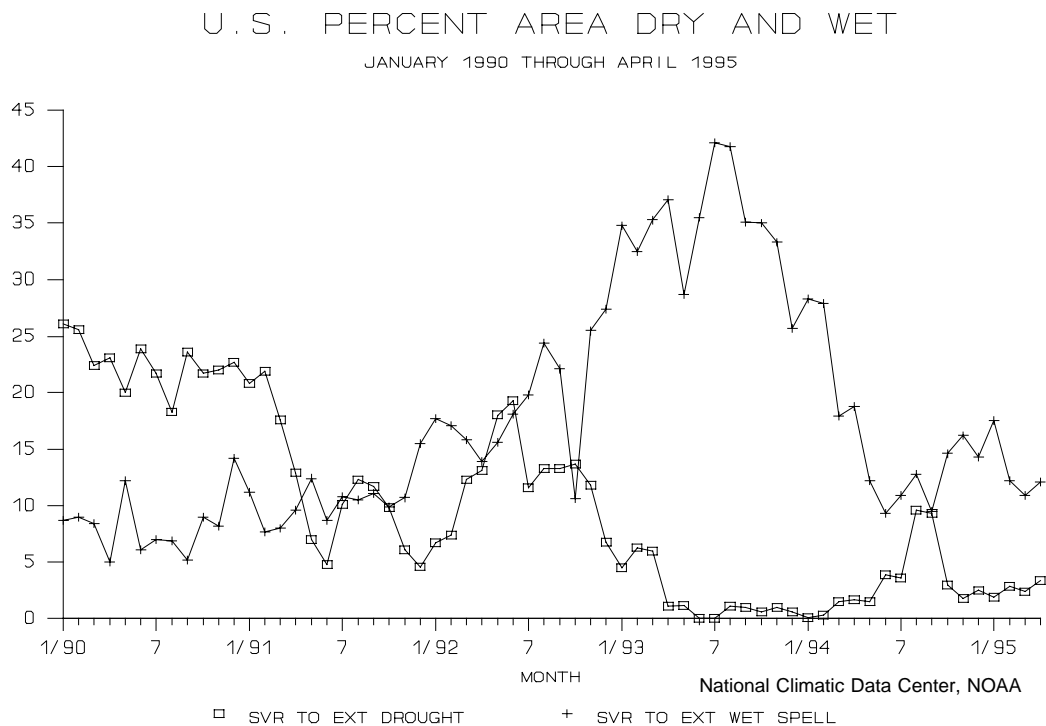


Figure 9

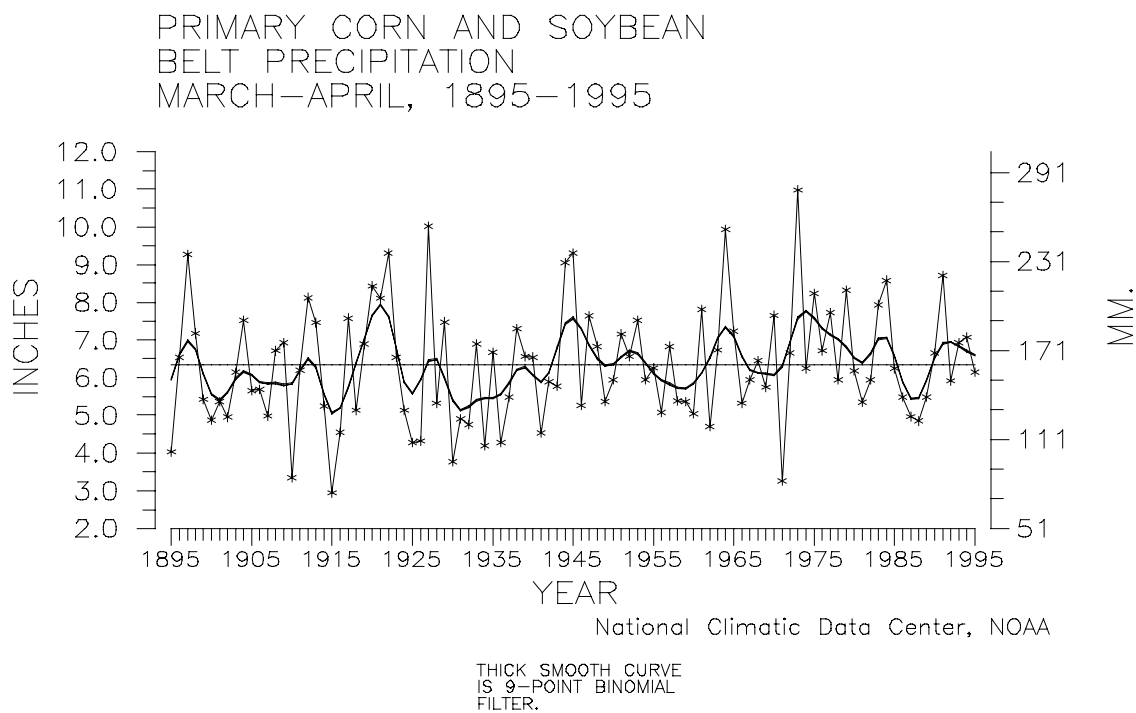
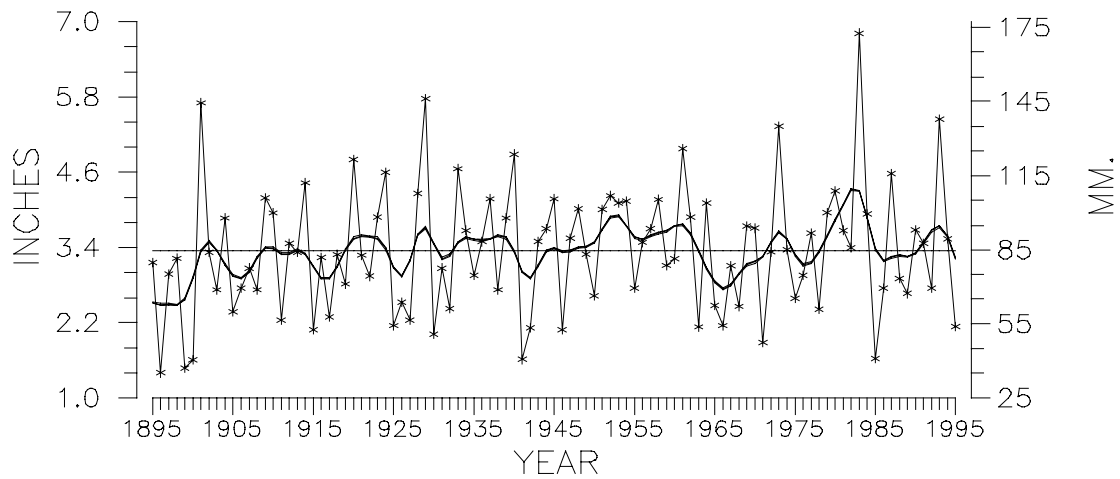


Figure 10

NORTHEAST REGION PRECIPITATION APRIL, 1895-1995

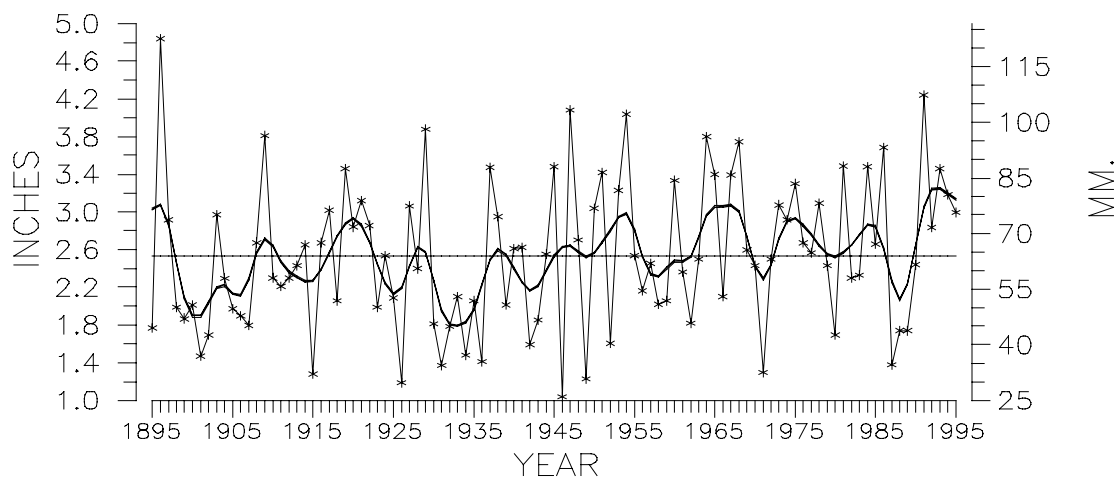


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Figure 11

EAST-NORTH CENTRAL REGION PRECIPITATION APRIL, 1895-1995

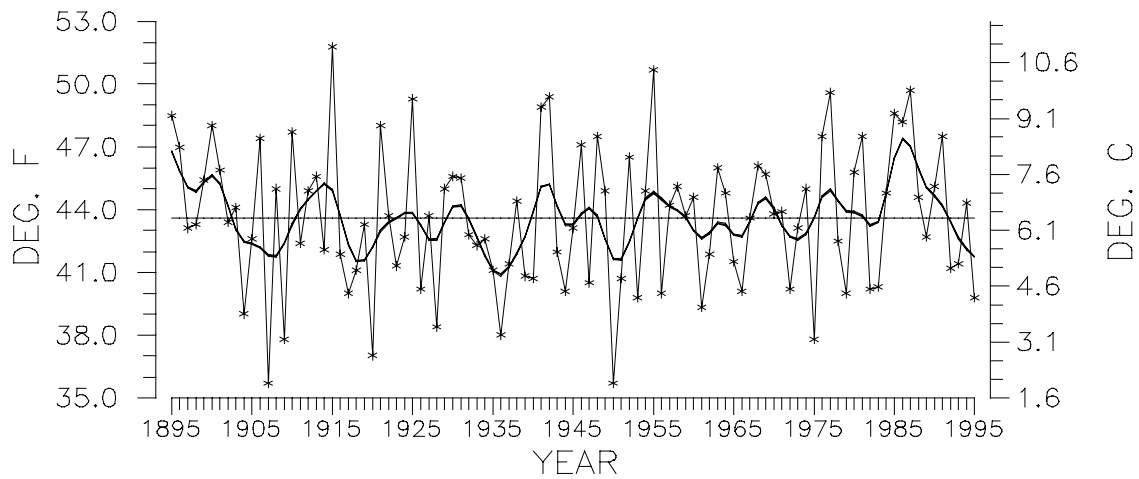


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Figure 12

EAST-NORTH CENTRAL REGION TEMPERATURE APRIL, 1895-1995

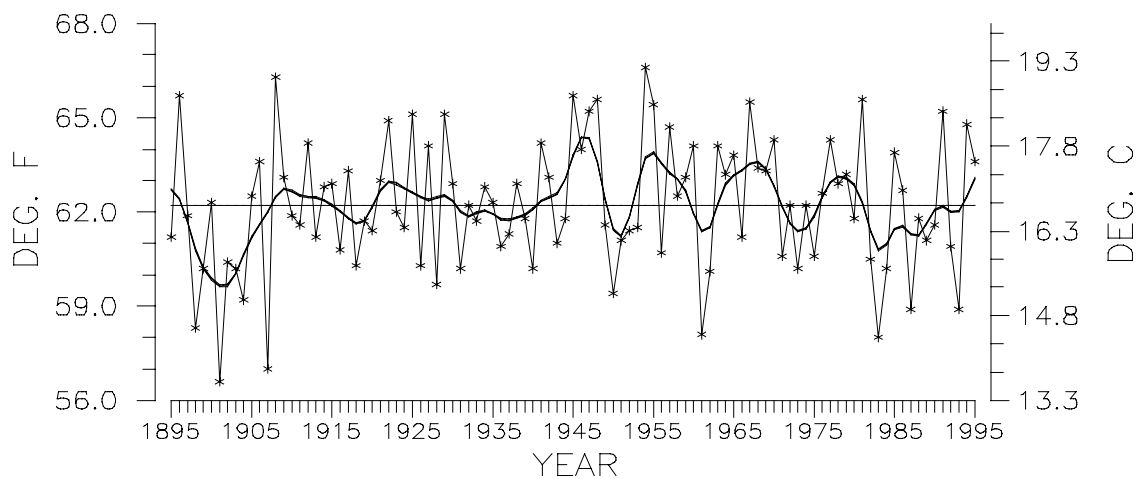


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Figure 13

SOUTHEAST REGION TEMPERATURE APRIL, 1895-1995



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Figure 14